

### **ABSTRACT OF THE DISCLOSURE**

An apparatus and a method for use in a color display system, for calculating a color temperature. The apparatus for calculating color temperature includes a color temperature selecting portion for selecting a left color temperature and a right color temperature that are most adjacent to a one-dimensional chroma inputted from a mapping table, the mapping table consisting of chroma and color temperature, a distance calculating portion for calculating distance between the selected left color temperature and the inputted one-dimensional chroma, and between the selected right color temperature and the inputted one-dimensional chroma, respectively, and a color temperature calculating portion for calculating a color temperature corresponding to the one-dimensional chroma inputted in accordance with a ratio of the calculated distance. Accordingly, the apparatus and method can be established using little hardware since the color temperature is calculated at a one-dimensional level.